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ABSTRACT

Indigenous minority children within many multiracial communities appear to suffer educational disadvantage reflected through poor school retention and school achievement. As part of an on-going research program aimed at understanding students' motivation and school achievement this paper examines the relations and effects of parental and teacher influences on student motivation for Navajo students' attending a large Navajo high school. The paper reports the relative influence of students' perceptions of support and value of school, together with the impact of sex and language spoken at home, for their academic performance. Confirmatory factor analysis is used to confirm the appropriateness of the Facilitating Conditions Questionnaire for the participants. Regression is used to describe the relations of the six dimensions drawn from the Facilitating Conditions Questionnaire for academic performance. Analysis of covariance is used to describe the impact of sex and language spoken at home for these same dimensions. The confirmatory factor analysis confirmed that the six dimensions drawn from the Facilitating Conditions Questionnaire were appropriate for these participants. The regression results demonstrated that these dimensions are effective in accounting for variation in academic performance. With an alpha level of 0.05 there were significant main effects for sex on three dimensions. The results are examined in light of theory and extant literature. (Contains 5 tables, 4 figures, and 38 references.) (SLD)

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Facilitating Conditions and Academic Achievement in a Cultural Context

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Abstract

Indigenous minority children within many multiracial communities appear to suffer educational disadvantage reflected through poor school retention and school achievement. As part of an on-going research program aimed at understanding students' motivation and school achievement this paper examines the relations and effects of parental and teacher influences on student motivation for Navajo students' attending a large Navajo high school. The paper reports the relative influence of students' perceptions of support and value of school, together with the impact of sex and language spoken at home, for their academic performance. Confirmatory factor analysis is used to confirm the appropriateness of the Facilitating Conditions Questionnaire for the participants. Regression is used to describe the relations of the six dimensions drawn from the Facilitating Conditions Questionnaire for academic performance. ANOVA's are used to describe the impact of sex and language spoken at home for these same dimensions. The confirmatory factor analysis confirmed that the six dimensions drawn from the Facilitating Conditions Questionnaire were appropriate for these participants. The regression results demonstrated that these dimensions are effective in accounting for variation in academic performance. With an alpha level of .05 there were significant main effects for sex on three dimensions. The results are examined in the light of theory and extant literature.

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Introduction

It has been argued that schools, emphasising Western values, are poorly suited to many indigenous students who, due to sociocultural factors (social and cultural history, social mobility, social and cultural norms and values), poor academic achievement, and seeing little purpose in completing school, are poorly motivated at school (See for example Deyhle and Swisher, 1997; Vadas, 1994; Graham, 1994; Chrisjohn, Towson, & Peters 1988; Sanders, 1987; Ogbu and Matute-Bianchi, 1986). Research also suggests that parents, teachers, and peers significantly influence students' motivation and academic achievement (Chung, Walkey, & Bemak, 1997; Vadas, 1995; Zimmerman, Bandura, and Martinez-Pons, 1992; Platero, Brandt, Witherspoon, and Wong, 1986). Consequently it is believed that for some minority communities discrepancies between school and societal success, and the communities culture and socialization processes may not always be conducive to students' motivation to engage in schooling.

A clearer understanding of the relations of these variables for educational outcomes is important for current and future generations of American Indian students. At the risk of over simplifying important issues there is not ready agreement within American Indian communies regarding the most effective means of delivering and improving educational outcomes for their children. On the one hand is the view of traditionalists and learning style advocates that education should be centered around American Indian cultural characteristics or learning styles. On the other hand there are those who advocate an assimilationalist view and who reject the idea that American Indian culture is in conflict with Anglo school culture. Here the argument is that education should remain Anglo-centered reflecting the dominant Anglo culture. (see, for examples, Bigart, 1974; Rindone, 1988; Deyhle, 1989; Ruey-Lin Lin, 1990; Reyhner, 1993; Deyhle, 1995; Vadas, 1995; Tharp, Dalton, & Yamauchi, 1994; James, Chavez, Beauvais, Edwards, & Oetting, 1995; Deyhle & Swisher, 1997).

Ogbu et al, (1986) pointing to the differences in performances between minority groups argues that it is insufficient to look merely at differences between groups in educational outcomes and culture. One has also to look at the relations of sociocultural factors at work within the group and differences in these relations

between groups. In this context he argues that children's responses to schooling (success or failure, attendance, engagement in academic tasks) are understandable in terms of student adaptations. For example Chrisjohn, et al, (1988) argue that for American Indian students the relatively poor results in academic achievement are an understandable adaptation to the historical affects of contact with the American education system. According to Chrisjohn et al (1988) one of the most important affects of this contact has been parental attitudes developed toward schooling and the degree to which these attitudes are internalized by American Indian students. Briefly, they argue that students learn that parents hated their educational experiences, believe that academic success is unrelated to societal success, and that education makes Indians less Indian. Regarding this latter point, it is held that the values implied in Western school practices are antithetical to many American Indian values. For example, for American Indians, co-operation, as opposed to competition, is highly valued, there is negative value attached to public praise or blame. Yet, it is argued, Western school practices emphasise competition and public praise or blame (see, for examples, Deyhle, et al, 1997; Chrisjohn, et al, 1988). Hence, despite emphasis placed on the value of schooling by Indian communities generally, many students may not perceive this value because of their own particular backgrounds.

Traditional Values and Learning

Deyhle, et al, (1997) in a review of American Indian education conclude that teacher attitudes, American Indian learning styles, and cultural attachment and language are important influences for American Indian students. Vadas, (1995) reported sex differences in academic performance among Navajo students with females performing better than males. These differences were explained in terms of traditional values. Vadas, (1995) argued that the Navajo culture is traditionally "matrilineal or matrilocal". In this context, for the Navajo female, contact with the Anglo world has left much of the traditional values intact. However, for the Navajo male the identity transition has left them in a world where material possessions are seen as a source of personal identity in contrast to the traditional role of hunter and warrior. Vadas, (1995) also reports that the profile of Navajo students who dropped-out tended to be more traditional, have less materialistic values, and have parents that speak only Navajo. Platero, et al, (1986) also reported sex differences in academic

achievement and drop-out rates for Navajo students with females having higher achievement and lower drop-out rates than males. They, like Vadas, (1995), also report that the profile of American Indian student drop-outs tended to be more traditional.

In contrast other researchers report findings which suggest that it is not the fact of the individual identifying with a particular culture that is important, rather it is the strength of that identification. The evidence suggests that weaker cultural (social) identities may be related to poor academic performance, whereas, stronger cultural identities may be related to better academic performances (James, et al, 1995; Ethier & Deux, 1994; Oetting & Beauvais, 1990). Adding to this argument are the findings of McInerney, Roche, McInerney, & Marsh (1997) regarding motivational profiles of the Navajo, Australian Aboriginals, Australian immigrants and Anglo's, and Betsiamite First Nation Indians students. They concluded "... that the motivational profiles of the different groups were more similar than different; that a narrow range of goals and sense of self variables are important in explaining school achievement on educational criteria, and these are similar across groups; and that key variables used to distinguish Western and indigenous groups do not appear to be salient in the school contexts studied here." (p233).

This does not denigrate the argument that cultural identity is an important factor in academic achievement. Indeed, it strengthens it to the extent a strong cultural identity is an important variable for academic achievement. James, et al, (1995) point out that individual growth, community success, and cultural survival are intertwined. They further point out that academic achievement and school retention are important components of community health and vitality and, that community support is an important component of academic achievement and school retention.

The aim of the present paper is to examine among students attending a large Navajo High School:

- The relative influence of students' perceptions of parents, teachers, and peers support for their school achievement;
- The relative influence of valuing school for school achievement;
- The effects of sex and language spoken at home for student perceptions of support and value of school.

A Model for Research.

Motivational models often postulate an intervening variable or construct between intention and behavior (see, for examples, Maehr and Midgley, 1996; Triandis 1995; Anderman and Maehr, 1994; Pintrich, Marx, and Boyle, 1994; Meece, 1994;). An array of variables such as individual beliefs about the difficulty of, and one's ability to, accomplish the task; the intrinsic and extrinsic value of the task; and factors such as school evaluation processes and parent, teacher, and peer relationships, have been posited as either enhancing, or inhibiting, a successful academic outcome.

The concern of the present paper is to explore the relations of students' perceived support and value of school for school performance, and, the effects of sex and language spoken at home for students' perceived support and value of school. Specifically it comprises three analyses:

Analysis 1: Describes confirmatory factor analyses of the Facilitating Conditions Questionnaire (FCQ) to demonstrate the applicability and relevance of students' perceptions of support and value of school dimensions to Navajo students' at a large Navajo High school;

Analysis 2: Describes the relative power of students' perceptions of support and value of school to predict their academic achievement, and, the relations of these variables for academic performance;

Analysis 3: Describes the effects of sex and language spoken at home for students' perceptions of support and value of school.

Method

Participants

Participants in this study were students (n=306) drawn from a large High School located in the Navajo Nation, Arizona. The school, by and large, follows mainstream state prescribed curriculum. Students participating in the study were from years seven through to twelve. There were approximately equal numbers of males and females. Ninety seven percent of students lived on the reservation (with 43% living in villages on the reservation and 53% living in rural areas on the reservation). Sixty

percent of students spoke Navajo and English at home, thirty seven percent English only, and three percent Navajo only. The group who spoke Navajo only were collapsed into Navajo and English for the analyses.

Demographics reported by students are that twenty seven percent of fathers and forty seven percent of mothers are not regularly employed. Regarding type of occupation, of the fathers who are employed, student reports are that sixty one percent are unskilled or semi-skilled, twenty four percent are skilled, and fifteen percent are professional. For mothers, the respective occupation figures are, fifty three, twenty two, and twenty six percent. Student reports of parent education are that for fathers' four percent had no education or completed primary school only, sixteen percent completed years seven to eleven, forty five percent completed high school, and thirty four percent have a college education. For mothers' the respective figures are, five percent, twenty one percent, thirty eight percent, and thirty five percent.

Instruments

The FCQ was designed by McInerney (1988) to reflect Maehr's (1984) and Maehr, et al, (1986) concept of action possibilities. It is hypothesized that factors in the environment intervene between intent and behavior such that they facilitate, or inhibit, behavior. Action possibilities refers to those action alternatives in terms of sociocultural norms, roles, and values perceived by students to be available and appropriate in a given context. Inventory items relate to students' perceived support of parents, teachers, and peers. Other items relate to perceived value of school.

The inventory comprises forty one items randomly assigned throughout the form. The items are arranged using a Likert- type scale and ranged from 1 (strongly agree) to 5 (strongly disagree). These were reversed scored in the analyses. The group was familiar with the paper-and-pencil format used. The questionnaire was presented in English (the common language of school for the students) with minor modifications made to reflect Navajo idiom.

Examples of items are:

Parental positive influence. If I decided to go on to College my father would encourage me; and, My mother tells me that I am bright enough to go on to college;

Parental negative influence: My mother doesn't worry if I get a job or not when I leave school; and, My father doesn't worry if I get a job or not when I leave school;
Teacher positive influence: I get encouragement from my teachers to do well at school; and, When my teachers show interest in me I try harder at school;
Leave school influences: My friends tell me I should leave school as soon as possible; and, My father encourages me to leave school as soon as I want;
Positive value of school: Doing well at school is really important to me; and , If I do well at school I am more likely to get a good job;
Negative value of school: Some people need education for their jobs, but for most of us it is a waste of time; and, I hate learning of any type.

Analysis 1

The methodological and conceptual difficulties involved in measuring and defining psychological constructs in cross-cultural studies have been discussed in a large number of papers (see, for examples, McInerney, et al, 1997; McInerney, 1988; Davidson, Jaccard, Triandis, Morales, and Diaz-Guerrero, 1976). Earlier work by the second author has been concerned with the factorial validation and utility of the FCQ (see, for example, McInerney, 1992 1989 1988) across a range of culturally different groups. Responses to the FCQ from a total of 2,684 secondary students, drawn from Aboriginal Australian, Anglo Australian, immigrant Australian, and American Navajo Indian communities, were subjected to Exploratory Factor Analysis (EFA) that yielded factor scales consistent with the theory of action possibilities and which were employed as variables in a series of multiple regression analyses. The findings supported the utility of the FCQ in analyzing influential intervening variables that support, or inhibit, academic achievement in school contexts. In this study we were interested in validating the FCQ using more powerful measurement or model fit techniques. Specifically, Confirmatory Factor Analysis (CFA; Jöreskog and Sörbom, 1988; Schumacker and Lomax, 1996).

We were concerned to keep the number of factors and items to a minimum. We first posited an a priori structural model (based on the FCQ), indicating which items should load onto which factors. We then tested the ability of a solution based on the hypothesized models to fit the data. In all four models, items were tested to arrive at the best model fit.

Criteria utilized in evaluating model fit were: First, the model must result in a proper solution that is well-defined (containing no impossible parameter estimates such as negative variances); second, parameter estimates should be substantively reasonable in relation to the hypothesized model and common sense; and third, fit indices should be evaluated. Traditional chi-square tests have been shown to have weaknesses regarding model fit and model comparison (Bentler, 1990; Marsh, 1994). Due to this the Relative Noncentrality Index (RNI) and the Tucker-Lewis Index (TLI; recommended by Marsh and Balla, 1994) were used in the assessment of model fit.

Results and Discussion

LISREL (Jöreskog and Sörbom, 1988) was used to refine the scales and determine the best overall fit between the four models. Four CFA's were used to identify suspect items and select the best overall fitting model. Criteria such as factor loadings, uniqueness, and modification indices, scale reliability results, critical review of item wording, and scale definition were used to eliminate poor items. For each model items were constrained to load only on the factor it was designed to measure. Item correlations between factors and uniqueness were freely estimated.

- Dimensions selected a priori for the CFA were: Positive parents (pospar). This dimension reflects the idea that students' parents encourage their child to have a college future, thus valuing school for the future;
- Negative parents (negpar). This dimension reflects the idea that students' parents are unconcerned about their child's future from the point of view of employment, thus devaluing school relative to employment;
- Teacher positive influence (postech). This dimension reflects the idea that teachers encourage students' to do well at school and value school for a college future;
- Leave school influences (leavschl). This dimension reflects the idea of parents and peers encouraging students' to leave school of their own volition. Deyhle (1989) reports that American Indian youth are treated as adults and that their individual decisions are to be respected. In this context it is not difficult to imagine students'

speaking of their parents willingness to support the decision to leave school and fellow students encouraging them to do so.

- Positive value of school (posvalue). This dimension reflects the idea of students valuing school for its instrumental and intrinsic value.
- Negative value of school (negvalue). This dimension reflects the idea of students not valuing school for its instrumental or intrinsic value.

The model containing 19 items resulted in the best overall fit - Chi square/df= 2.17; TLI= .886; RNI= .908 which represents a good fit. Loadings for each of the items on the targeted factors were also good. Table 1 presents the items drawn from the FCQ for CFA. Table 2 presents the fit indices of the four models subjected to the CFA. Table 3 presents the factor loadings. Reliability's ranged from .61 to .87 with an average of .74.

We can conclude from these results that the FCQ is an appropriate instrument to use with this sample. We now turn to analysis 2 in which we describe the relative power of students' perceptions of support and value of school to predict their academic achievement.

Table 1

Items Comprising Scales Drawn From Confirmatory Factor Analysis of the Facilitating Conditions Questionnaire

Positive value (posvalue)
If I do well at school I am more likely to get a good job
Doing well at school is really important to me
If I work hard at school I will probably do better than my parents
I think that it is really important to do well at school
People who have a good schooling get more out of life than ones who don't
Negative Value (negvalue)
I have to do a lot of subjects at school that won't be any help to me after I leave school
I hate learning or studying of any type
Some people need education for their jobs, but for most of us it is a waste of time
Leave school influences (leavschl)
My friends tell me I should leave school as soon as possible
My father encourages me to leave school as soon as I want
My mother encourages me to leave school as soon as I want
Positive parents (pospar)
If I decided to go on to College my father would encourage me
My father tells me that I am bright enough to go on to College
My mother tells me that I am bright enough to go on to college
Negative parents (negpar)
My father doesn't worry if I get a job or not when I leave school
My mother doesn't worry if I get a job or not when I leave school
Positive teachers (postech)
My teachers tell me I am bright enough to go on to college
When my teachers show interest in me I try harder at school
I get encouragement from my teachers to do well at school

Table 2

Goodness of Fit Indices

Model Description	CHISQ	df	CHI/df	RNI	TLI
		Models 1 to 4			
Null	2408.54	331	7.28	-	-
22 Items	526.38	194	2.71	.840	.727
Null	2139.16	210	10.19	-	-
21 Items	393.7	174	2.26	.886	.863
Null	2027.78	190	10.67	-	-
20 Items	343.12	155	2.21	.898	.875
Null	1914.93	171	11.20	-	-
19 Items	296.69	137	2.17	.908	.886

Note: CHISQ = Chi-square; CHI/df = Chi-square/degrees of freedom ratio;
RNI = Relative Noncentrality Index; TLI = Tucker-Lewis Index (also known as the non-normed fit index or NNFI). TLI = (CHISQNull/dfNull-CHISQ/df)/(CHISQNull/dfNull-1). RNI = ((CHISQNull/N-dfNull/N)-DK)/CHISQNull/N-dfNull/N) where DK = (CHISQ/N)-(df/N)

Table 3

Confirmatory Factor Analysis Loadings

	negpar	leavschl	postech	pospar	posvalue	negvalue
C33A	.843	.000	.000	.000	.000	.000
C34A	.924	.000	.000	.000	.000	.000
C4A	.000	.516	.000	.000	.000	.000
C5A	.000	.962	.000	.000	.000	.000
C6A	.000	.852	.000	.000	.000	.000
C14A	.000	.000	.439	.000	.000	.000
C30A	.000	.000	.599	.000	.000	.000
C35A	.000	.000	.713	.000	.000	.000
C1A	.000	.000	.000	.850	.000	.000
C2A	.000	.000	.000	.789	.000	.000
C12A	.000	.000	.000	.594	.000	.000
C20A	.000	.000	.000	.000	.600	.000
C21A	.000	.000	.000	.000	.660	.000
C31A	.000	.000	.000	.000	.452	.000
C36A	.000	.000	.000	.000	.723	.000
C41A	.000	.000	.000	.000	.533	.000
C11A	.000	.000	.000	.000	.000	.661
C17A	.000	.000	.000	.000	.000	.591
C37A	.000	.000	.000	.000	.000	.503

Analysis 2

Psychometric instruments, such as the FCQ, are designed to describe characteristics of individuals and groups on particular dimensions of interest in order to highlight similarities and differences between groups; explain outcome variables, such as performance, in terms of particular individual and group characteristics and differences, and/or predict future behavioral outcomes (such as school retention and choice of occupation) in terms of particular student and group characteristics (McInerney, et al, 1997). Our concerns in this section were twofold: First, is the FCQ effective in explaining variation in the academic achievement of these participants? and, What are the most salient predictor variables?

Second, earlier we outlined Ogbu, et al's, (1986) theory that students' school adaptations are reinforced when the shared cultural or community knowledge about the relationship between school and societal success are not too discrepant with the encouragement for school success extended to students by parents, other adults, and peers. In other words, when students believe that succesful schooling will enhance life opportunities and this is modelled and reinforced within their community, then they will be achievement oriented. In the present paper we explore this question but in terms of discrepancies. We ask the question: What are the affects for students when there is a discrepancy between parental and teacher encouragement for school success and the actual "payoff" in terms of improved life chances as a result of schooling. In other words, what happens when students are told "schooling is important and useful" but this message is not modelled and reinforced in their communities? Deyhle (1989) and Deyhle & Swisher (1997) report that the parents of American Indian students wish their children to succeed at school. For the participants in this study, thirty four percent of fathers have a college education and forty five percent completed high school. Yet sixty one percent are employed in unskilled or semi skilled capacities. Only fifteen percent are employed in a professional capacity. It is difficult to imagine that such a social reality is ignored by the community.

To explore this question we conducted two path analyses. The first explored the relations of positive parent (pospar) and teacher (postech) support and positive value of school (posvalue) for academic performance (GPA). In the second, we explored the relations of negative parental support (negpar), encouragement to leave

school (leavschl), and negative value of school (negvalue) for academic performance (GPA).

Independent Variables.

The independent variables are the mean scales drawn from the FCQ based on the CFA reported in analysis 1. The CFA indicated moderate correlations among the positive factors (pospar, posvalue, postech) ranging from .384 to .533. These are conceptually related scales so there was concern to evaluate potential multicollinearity between the scales. Pedhazur and Schmelkin (1991) suggest that with more than two independent variables the use of zero order correlations to detect multicollinearity is unwise. They point out that it is possible for zero order correlations to be low yet for the squared multiple correlation to be high (p448). Pedhazur & Schmelkin, (1991) instead recommend when using SPSS an inspection of the tolerance of each independent variable. The lower the tolerance the more likely there is multicollinearity between the variables. In this instance tolerances were: pospar .809, posvalue .765, and postech .743. All of which are acceptable results. Consequently we were not concerned with multicollinearity.

Dependent Variable

The dependent variable was Grade Point Average (GPA) as reported by the school. GPA is a standardized measure computed by the school.

Statistical Analysis

For the first part of the analyses a series of regressions using the mean scales drawn from the FCQ as independent variables were conducted to determine whether they predicated the dependent variable (GPA). (Table 4 presents the results when all predictor variables were entered as a block) For the second part of the analyses Path Analyses (PA) were used to examine the relations between the positive (PA1) and negative (PA2) dimensions drawn from the FCQ for the dependent variable. (Figure 1 presents the results of these analyses)

Table 4

Standardized Beta Weights and Regression Coefficients for the Six Factors Drawn from the FCQ

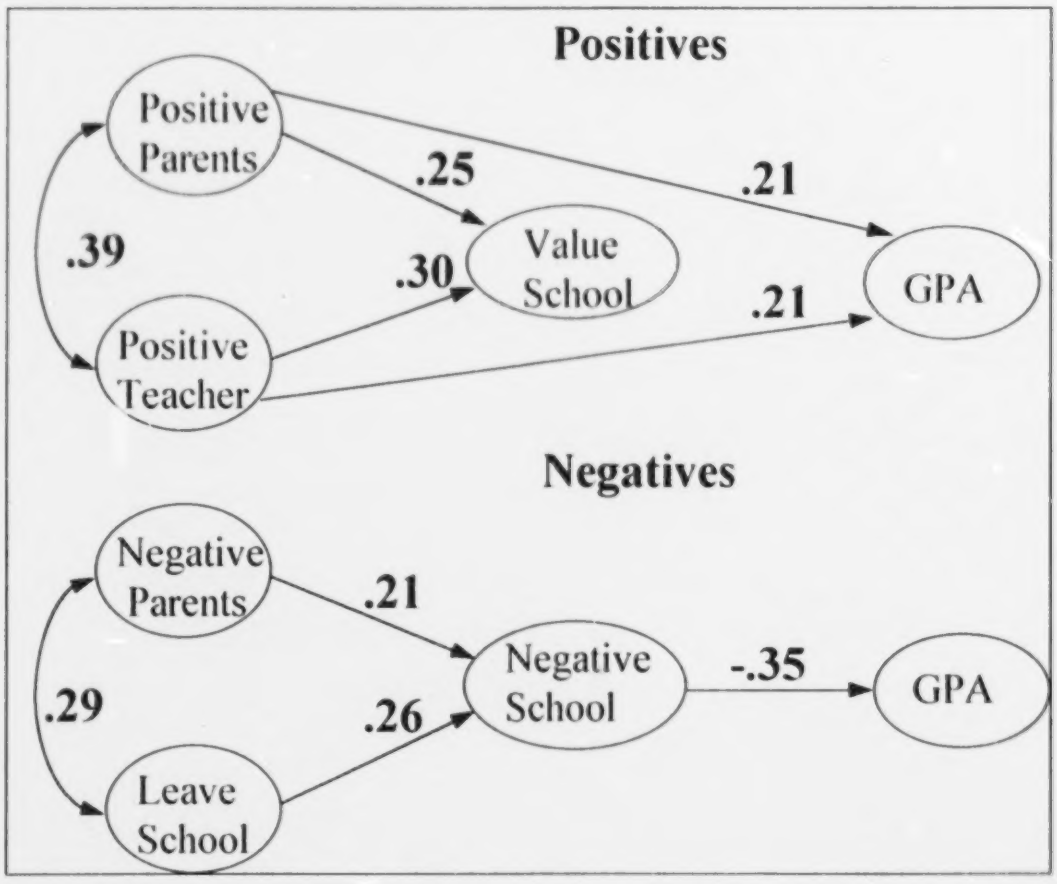
Variable	Standardized Beta Weights	Mult R	R^2	df	F	F Sig
negpar	029	425	181	6,246	9.03	001*
leavschl	062					
postech	137*					
pospar	181*					
posvalue	032					
negvalue	-.259*					

Note: * $p < .05$

Figure 1

(PA1 and PA2)

Results of Path Analysis Showing the Relations of Positive and Negative Dimensions for GPA



Results and Discussion

The results for the first part of the analyses demonstrate that the FCQ is effective in predicting variation in academic performance. However, three of the variables accounted for most of the variance; pospar, postech, and negvalue. Of particular interest to the present paper was that posvalue did not predict GPA (β= 032). The results for the second part of the analyses suggest: a) where there is a discrepancy between parental and teachers encouragement for school success and the relationship between school and societal success, students' academic performance is still significantly influenced by parent and teacher encouragement. b) Where there is no discrepancy, students' school success is more likely to be indirectly influenced by parental encouragement. These latter results seem to be consistent with Ogbu, et al, (1986) theory.

The question these results pose is why students' school performance was not influenced by positive value of school. In the first path analysis it appears that valuing school and actual school achievements are not related, which confirms the discrepancy theory. In this case students may value school in the sense of "mouthing the right words" yet not necessarily achieve well, because actual school achievement is not perceived to be related to enhanced life chances. It appears that both valuing schooling and obtaining high GPA's are independently affected by positive parent and teacher values. In the second path analysis it appears that negative parent and peer attitudes have an indirect affect on achievement through the development of negative attitudes in students. In this case there is no discrepancy between community values (not valuing schooling for its instrumental value) and the perceived lack of value of schooling and the uselessness of doing well at school. We would be more confident in either of these explanations if we knew that these participants did indeed see no correspondence between school and societal success. However, the results are interesting and they do suggest an area for future research. There may be other more cogent explanations for these results and that is a subject for theorizing. Finally, what was not considered here, but will be at a later stage, is the relations of all the dimensions drawn from the FCQ in a single path analysis for GPA. This may also shed further light on the results reported here.

Importantly, for these participants, what these findings do suggest is that positive influences of parents and teachers do directly influence academic

performance. Also, that negative influences of parents indirectly influence academic performance. However, they directly influence a negative value of school and negative value of school directly influences academic performance.

In this section we tentatively examined the argument that for American Indians the adult community experience of education through contact with Western style schools influences current students attitudes toward school; that for many parents of current students this experience was not a positive one; and, that many parents and students perceive there is no relationship between school and societal success. It followed that parents relating their experience and perceptions to their children were unlikely to engender in them a positive affect to school

Analysis 3

In this section we examine the effects of sex and language spoken at home for the dimensions drawn from the FCQ.

Research suggests that for Navajo students the incompatibility between cultural and socialization processes, such as learning to learn, impact on students' academic achievement in Western style schools - the mismatch hypothesis (see, for examples, Deyhle, 1989; Vadas, 1995; Deyhle, et al, 1997). Other research suggests that cultural identity of itself has little impact on academic achievement. What seems more important is the strength of cultural identity; strong or weak cultural identity has been linked with school success (see, for examples, Oetting, et al, 1990; Ethier, 1994; James, et al, 1995). Yet other research suggest differences in academic performance and drop-out rates between sexes (See, for examples, Platero, et al, 1988; Vadas, 1995); differences in academic performance and drop-out rates between traditional and non traditional lifestyles (Vadas, 1995). James, et al, (1995) argues that there has been insufficient research on the relationship between sex and culture and its impact for academic achievement and drop-out rates; that a clearer picture of these relationships would be informative in understanding indigenous students academic performance.

We believe that a better understanding of the relationships between students' perceptions of community support (parents, teacher, peers), sex, and traditional lifestyles will further inform our knowledge.

In this section we explore this issue in terms of similarities and differences between male and female and traditional and non traditional Navajo students for the dimensions derived from the FCQ (reflecting positive and negative influences). Recall that previous findings suggest that the drop-out profile of Navajo students is one where they tended to be more traditional, have less materialistic values, and speak only Navajo at home. In addition males were more likely than females to drop-out. For the present study we ask the following questions:

Do students who speak Navajo and English at home perceive less supportive influences than those that speak English only? Do students who speak Navajo and English at home negatively value school more than those that speak English only? Do males perceive less supportive influences than do females? and, Do males negatively value school more than females?

Method

Dependent Variables

The dependent variables are those drawn from the FCQ based on the CFA reported earlier. Table 1 lists these variables and the average reliability are reported in the results and discussion section of analysis 1.

Independent variables.

The independent variables are sex (1 = male, 2 = female) and language spoken at home (1 = Navajo and English, 2 = English only). For those participants who speak Navajo at home it is more likely that they have access to, and are influenced by, Navajo values than those who speak English only. Therefore, we have used language spoken at home as a proxy for Navajo culture. We would have preferred an instrument that measures strength of cultural identity rather than the proxy used here. However, this was not available to us and in its absence we have used a variable which approximates cultural identity.

Statistical Analysis

A 2 X 2 factorial design was adopted for this analysis. MANOVA was used to test for main and interaction effects of sex and language spoken at home. MANOVA was also used for follow-up analysis of interaction effects. An alpha level of .05 was used for all statistical tests.

Results and Discussion

At the alpha level of .05 the significant main effect of sex was statistically significant for positive value of school $F(1,266) = 4.11$, $p = .044$; positive teachers $F(1,266) = 3.99$, $p = .047$; and negative value of school $F(1,266) = 20.44$, $p .001$. There were no significant main effects of language spoken at home at the alpha level of .05. Table 5 presents the results of the effects of sex for the FCQ dimensions. While there were no significant interaction effects of sex and language at the alpha level of .05, there was an interaction effect of sex and language for leave school influences (leavschl) at the alpha level of .1 $F(1,266) = 3.53$, $p .06$. Other research had suggested an interaction of sex and language spoken at home (Vadas, 1994, Platero, 1986). Our concern was to explore this issue. We therefore felt it relevant, and informative, to test at alpha .05 the simple main effects of sex and language spoken at home for influences to leave school. These tests revealed that females who spoke Navajo and English at home ($M = 2.14$) were more likely than females who spoke English only ($M = 1.8$) to perceive parents as encouraging them to leave school, and, males who spoke English only at home ($M = 2.29$) were more likely than females who spoke English only at home ($M = 1.99$) to perceive parents as encouraging them to leave home. Table 6 presents these results and figure 3 graphically represents them.

Perceptions of positive teachers (postech) and positive value of school (posvalue), were more likely to be seen by females than males as positive influences. Perceptions of negative value of school (negvalue) were more likely to be seen by males than females as negative influences. These results are similar to those of other researchers (James, et al, 1995 than those of Vadas, 1994).

Of importance is the finding that language spoken at home was not significant for any of the dimensions drawn from the FCQ. In terms of the questions posed

earlier in the present research we can conclude that for these participants it is one's sex that has a bearing on perceptions of support and that it is females who perceive more positive and less negative influences than males. Yet, despite the statistically significant differences between males and females, the findings also suggest that male and female profiles are more similar than dissimilar. Figure 4 illustrates this similarity where in all instances the means for positive influences are greater than three, yet all negative influences are less than three.

From a theoretical standpoint these findings add to the weight of evidence that it is unlikely that one's culture alone is a significant variable for students school success. The findings, together with those of McInerney, et al, (1997), James, et al, (1995), and Ethier, et al, (1994), suggest that to better understand school success among indigenous minorities there is a need for research to look at the interrelations of multiple variables. Such research would be sensitive to, and account for, the relations and impact of values, demographics, and behavior for school success.

Table 5

Descriptives and Main Effects of Sex for Five FCQ Dimensions

		Male			Female				
Dependent Variable	**n**	**Mean**	**SD**	**n**	**Mean**	**SD**	**df**	**F**	**F Sig.**
Postech	134	3.54	.82	136	3.73	.77	1,266	4.11	.044*
Posvalue		4.2	.73		4.36	.63		3.99	.047*
Pospar		3.91	.93		4.09	.85		2.82	.09
Negvalue		2.5	.92		2.04	.79		20.44	.001**
Negpar		2.24	1.13		2.02	1.03		2.89	.09

Note : * $p<.05$ ** $p<.01$

Table 6

Results of the Analysis of the Interaction of Sex and Language Spoken at Home for Influences to Leave School (leavschl): Simple Main Effects

		Bilingual			English Only				
Variable	n	Mean	SD	n	Mean	SD	df	F	F sig
Female	81	2.14	.945	55	1.80	.886	1,266	4.03	.046*
		Male			**Female**				
English	46	2.29	1.05	55	1.99	1.02	1,266	6.6	.011**

Note. *p< 05 ** P<.01

Figure 3

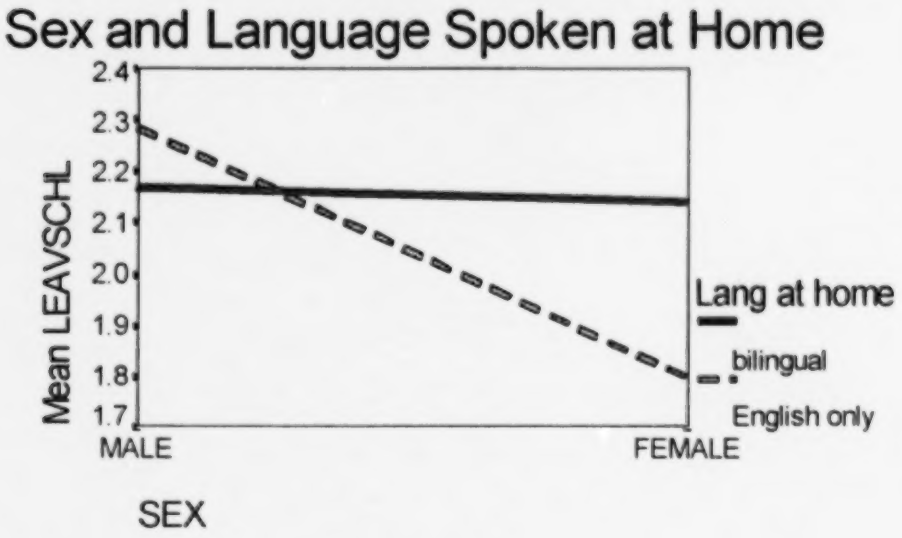
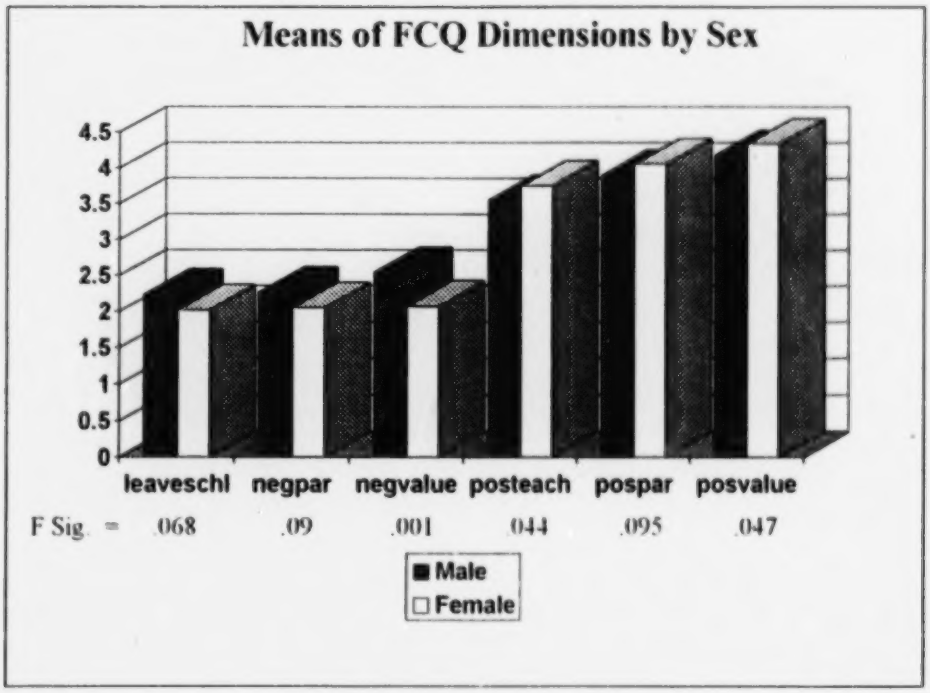


Figure 4



Summary and Conclusions

This study has validated the FCQ as an appropriate instrument for these participants and demonstrated its utility by enabling us to describe their characteristics, in terms of

parental and teacher support, sex, and language spoken at home, for academic performance.

Our findings suggest first, that parental and teacher support is an important variable in influencing students' academic performance. However, the relations between the positive or negative variables have different influences for academic performance. We offered two possible explanations for these results. The first of these points to theories of achievement motivation and the second to cultural values. Second, our findings further suggest that culture, as indicated by language spoken at home is, of itself, not a significant variable in determining whether students perceive parents and teachers offer positive or negative support, nor, whether or not students value school. These findings are generally consistent with those of a number of other researchers (for example James, et al, 1995,; Ethier, et al, 1994). There was, however, some evidence of an interaction between sex and culture for one of the FCQ dimensions. In addition, we found that sex had a significant effect in terms of three of the dimensions drawn from the FCQ. Here females were more likely than males to perceive positive influences. However, generally, there were more similarities than dissimilarities between the sexes.

From a theoretical standpoint these findings add to the weight of evidence that it is unlikely that one's culture alone is sufficient, for all practical purposes, to account for indigenous minorities school success. The findings, together with those of other researchers, suggest that to better understand school success among indigenous minorities there is a need for research to look at the interrelations of multiple variables. Such research would be sensitive to, and account for, the relations and impact of cultural values, demographics, and behavior for school success.

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